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EXAMINER

MCDONALD, RODNEY GLENN

ART UNIT

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.



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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Application Number: 10/657,085  
Filing Date: September 09, 2003  
Appellant(s): PERROT ET AL.

**MAILED**  
**NOV 09 2007**  
**GROUP 1700**

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Iurie Schwartz  
For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed August 22, 2007 appealing from the  
Office action mailed May 18, 2007.

**(1) Real Party in Interest**

A statement identifying by name the real party in interest is contained in the brief.

**(2) Related Appeals and Interferences**

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**(3) Status of Claims**

The statement of the status of claims contained in the brief is correct.

**(4) Status of Amendments After Final**

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

**(5) Summary of Claimed Subject Matter**

The summary of claimed subject matter contained in the brief is correct.

**(6) Grounds of Rejection to be Reviewed on Appeal**

The appellant's statement of the grounds of rejection to be reviewed on appeal is substantially correct. The changes are as follows:

The objection to the specification should not be considered under the rejection section since it is not a rejection. What should be considered is a new matter rejection under 35 U.S.C. 112 1<sup>st</sup> paragraph. This new matter rejection was made previously in the office action of October 13, 2005 and will be reinstated. The rejection is set forth under the new grounds of rejection section below.

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Appellant's brief presents arguments relating to a new matter objection to the specification. This issue relates to petitionable subject matter under 37 CFR 1.181 and not to appealable subject matter. See MPEP § 1002 and § 1201.

### **NEW GROUND(S) OF REJECTION**

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-6, 8-12 and 14-17 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Specifically, wherein at least about fifty percent of the front surface is frusta-conically configured is not discussed in Appellant's specification.

#### **(7) Claims Appendix**

The copy of the appealed claims contained in the Appendix to the brief is correct.

#### **(8) Evidence Relied Upon**

6,599,405	HUNT et al.	7-2003
5,674,367	HUNT et al.	10-1997
150 482	BILZ	9-1981

**(9) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

Claims 1-6, 8-12 and 14-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hunt et al. (U.S. Pat. 6,599,405) in view of Hunt et al. (U.S. Pat. 5,674,367) and Bilz (DD 150482)

Regarding Applicant's claims 1, 9 and 14, Hunt et al. '405 teach a method of manufacturing a sputter target assembly (See Abstract) comprising the steps of manufacturing a backing plate (Column 1 lines 61-62), the backing plate having a cylindrical recess having a depth and a diameter and a yield strength less than the yield strength of a target insert. (Column 1 lines 61-66) The backing plate has a planar top surface. (See Fig. 1) A target insert is manufactured. (Column 1 lines 59) The target insert has a conical-shaped rear surface. (Column 2 lines 30-31) The target has a rear surface that corresponds with the cylindrical recess of the backing plate. (Column 1 lines 62-64) The target has a yield strength greater than that of the backing plate. (Column 3 lines 4-6) The recess of the backing plate has a depth that is less than the height of the target. (Column 1 lines 62-64) The target insert is hot pressed into the cylindrical recess so that the backing plate material reaches a state of plastic deformation that facilitates forming strong solid state bonds. It is advantageous to diffuse and react the materials together to form reaction products that contribute to the bond strength. (Column 3 lines 21-32)

Regarding Applicant's Claims 2 and 9, Hunt et al. '405 teach at least fifty percent of the frusta-conical rear surface bonds to the backing plate. (Column 3 lines 49-51)

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Regarding Applicant's Claim 3, Hunt et al. '405 the target insert and backing plate are maintained at a temperature of above 200 degrees C for at least one hour to improve bonding. (Column 2 lines 60-62)

Regarding Applicant's Claim 4, Hunt et al. '405 pressing the target into near final shape includes utilizing powder. (Column 2 lines 56-59)

Regarding Applicant's Claim 5, Hunt et al. '405 the volume of the recess of the backing plate has a volume that is at least ninety percent of the volume of the tapered insert. (Column 3 lines 11-14)

Regarding Applicant's Claim 6, Hunt et al. '405 teach the backing plate recess can have a volume that is approximately equal to the tapered target insert's volume. (Column 3 lines 18-20)

Regarding Applicant's Claim 8, Hunt et al. '405 teach the cylindrical recess is disposed in a portion of the planar top surface of the backing plate. (See Fig. 1)

Regarding Applicant's Claims 10 and 15, Hunt et al. '405 teach the recess having a shape conformed to the shape of the target insert. (Column 6 lines 36-38)

Regarding Applicant's Claims 11 and 16, Hunt et al. '405 teach the reaction product between the target insert and the backing plate bonds the target insert to the backing plate. (Column 3 lines 30-32)

Regarding Applicant's Claims 12 and 17, Hunt et al. '405 teach a frustum and a conical interface bonds the target insert to the backing plate. (Column 6 lines 42-44)

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Regarding Applicant's Claim 14, Hunt et al. '405 teach the conical interface consists of at least about sixty percent of the total bond surface area of the target insert. (Column 3 lines 51-53)

The differences between Hunt et al. '405 and the present claims is that the target insert protruding above the planar front surface of the backing plate is not discussed (Claim 1, 9, 14), the front surface of the target has a frusta-conical configuration is not discussed (Claims 1, 9, 14) and wherein at least about fifty percent of the front surface is frusta-conically configured is not discussed (Claims 1, 9, 14).

Regarding the target insert protruding above the planar front surface of the backing plate, Hunt et al. '367 teach a circular target. (Column 3 lines 4-6) The target front surface extends above the target backing plate. (Figure 7)

Regarding the front surface of the target having a frusta-conical configuration, Hunt et al. '405 teach that the target front surface can be frusta-conical. (Figure 7) Bilz teach in the Figure a target front surface where the target front surface is frusta-conical to obtain a uniform coating. (See Bilz Abstract; Figure)

The motivation for utilizing a target that is frusta-conical and extends above the surface of the backing plate is that it allows for utilizing thicker targets. (Hunt et al. Column 2 lines 6-8)

Regarding wherein at least about fifty percent of the front surface is frusta-conically configured, Bilz teach in the Figure a target front surface which has at least 50% of the front surface frusta conically configured. The sloped portions are greater than the flat portion of the target. (See Bilz Fig. 1)

The motivation for providing a target wherein at least about fifty percent of the front surface is frusta-conically configured is that it allows for depositing coatings uniformly. (See Bilz Abstract)

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified Hunt et al. '405 by utilizing a target insert that protrudes above the planar front surface of the backing plate, to have utilized a front surface that has a frusta-conical configuration as taught by Hunt et al. '367 and Bilz and to have utilized a target wherein at least about fifty percent of the front surface is frusta-conically configured as taught by Bilz because it allows for utilizing thicker targets and for depositing coatings uniformly.

**(10) Response to Argument**

***RESPONSE TO THE FIRST GROUND OF REJECTION –***

First it should be noted that a new matter rejection of October 13, 2005 has been reinstated and that the arguments will be addressed as if they are in response to this rejection since the objection and the rejection are interrelated as pointed out by Appellant.

Appellant has argued that Figure 4 of their drawings provide support for a target having a frusta-conical portion at least fifty percent. However it is the Examiner's position that the drawings are not to scale and do not support the range of "at least fifty percent". It appears from Fig. 4 that the majority of the surface of target is frusto-conical but the range of how much is not supported by the specification or the drawings. The MPEP states that PROPORTIONS OF FEATURES IN A DRAWING ARE NOT



#### EVIDENCE OF ACTUAL PROPORTIONS WHEN DRAWINGS ARE NOT TO SCALE

When the reference does not disclose that the drawings are to scale and is silent as to dimensions, arguments based on measurement of the drawing features are of little value. See *Hockerson-Halberstadt, Inc. v. Avia Group Int'l*, 222 F.3d 951, 956, 55 USPQ2d 1487, 1491 (Fed. Cir. 2000) (The disclosure gave no indication that the drawings were drawn to scale. "[I]t is well established that patent drawings do not define the precise proportions of the elements and may not be relied on to show particular sizes if the specification is completely silent on the issue.").

#### ***RESPONSE TO THE SECOND GROUND OF REJECTION –***

In response to the argument that Bilz does not concern affixing the target to a backing plate, it is argued that Hunt '405 and Hunt '367 was relied upon to teach affixing a target to a backing plate. Bilz was relied upon to teach the amount of frustoconical configuration for the front face of sputtering target. (See Hunt '405, Hunt '367 and Bilz discussed above)

In response to the argument that Bilz does not teach hot pressing a target insert into the backing plate to a state of plastic deformation so as to diffusion bond these elements, it is argued that Hunt '405, the primary reference, was relied upon to teach hot pressing a target insert into the backing plate to a state of plastic deformation so as to diffusion bond these elements. (See Hunt '405 discussed above; Hunt '405 Column 3 lines 21-32)

In response to the argument that Bilz is not concerned with the thickness of the target assembly, but rather the uniformity of the film applied to the substrate, it is argued

that Bilz front surface configuration leads to a uniform film depositing. Hunt et al. '405 and Hunt et al. '367 teach thickness for target in a backing plate. (See Hunt et al. '405 and Hunt et al. '367 discussed above)

In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

**(11) Related Proceeding(s) Appendix**

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

This examiner's answer contains a new ground of rejection set forth in section (9) above. Accordingly, appellant must within **TWO MONTHS** from the date of this answer exercise one of the following two options to avoid *sua sponte* **dismissal of the appeal** as to the claims subject to the new ground of rejection:

(1) **Reopen prosecution.** Request that prosecution be reopened before the primary examiner by filing a reply under 37 CFR 1.111 with or without amendment, affidavit or other evidence. Any amendment, affidavit or other evidence must be

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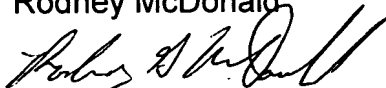
relevant to the new grounds of rejection. A request that complies with 37 CFR 41.39(b)(1) will be entered and considered. Any request that prosecution be reopened will be treated as a request to withdraw the appeal.

(2) **Maintain appeal.** Request that the appeal be maintained by filing a reply brief as set forth in 37 CFR 41.41. Such a reply brief must address each new ground of rejection as set forth in 37 CFR 41.37(c)(1)(vii) and should be in compliance with the other requirements of 37 CFR 41.37(c). If a reply brief filed pursuant to 37 CFR 41.39(b)(2) is accompanied by any amendment, affidavit or other evidence, it shall be treated as a request that prosecution be reopened before the primary examiner under 37 CFR 41.39(b)(1).

Extensions of time under 37 CFR 1.136(a) are not applicable to the TWO MONTH time period set forth above. See 37 CFR 1.136(b) for extensions of time to reply for patent applications and 37 CFR 1.550(c) for extensions of time to reply for ex parte reexamination proceedings.

Respectfully submitted,

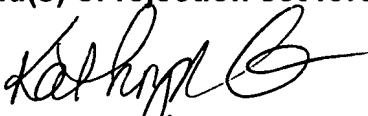
Rodney McDonald



RODNEY G. McDONALD  
PRIMARY EXAMINER

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**A Technology Center Director or designee must personally approve the new ground(s) of rejection set forth in section (9) above by signing below:**

  
Director Designee

Conferees:

  
Nam Nguyen

  
Kathryn Gorgos

Enclosed Machine Translations of German Patent to Bilz 150 482